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Final Rule for the Importation of Artificially Dwarfed Plants in Growing Media From the People's Republic of China

**Environmental Assessment,
December 2003**

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I. Introduction

The United States Department of Agriculture (USDA), Animal and Plant Health Inspection Service (APHIS), Plant Protection and Quarantine (PPQ) is proposing to amend 7 Code of Federal Regulations (CFR) 319.37 to allow the importation of artificially dwarfed plants (*Buxus sinica*, *Ehretia microphylla*, *Podocarpus macrophyllus*, *Sageretia thea*, and *Serissa foetida*), penjing plants, in approved growing media from the People's Republic of China. The proposed importation of penjing plants in APHIS-approved growing media and under specified growing conditions, if approved, will be managed by existing regulations [7 CFR § 319.37-5 (q) and 319.37-8 (e)] supplemented with new regulations specific to mitigating the pest risk posed by penjing plants from China.

A. Background

In China, trained miniature or artificially dwarfed artistic potted plants are called penjing. Penjing plants range from 4 to 60 inches in height. Their value may range from \$10 to \$10,000 per plant. The price of penjing plants depends on factors such as age, labor, and aesthetics. The penjing plants proposed for import into the United States under this rule are the younger penjing plants, which would have a lower value. China has been exporting bare-rooted artificially dwarfed plants to the United States for many years. Plants imported from Asia (Japan, the People's Republic of China, and the Republic of Korea) represent approximately 80 percent of the value of the entire artificially dwarfed plant market in the United States. Currently, none of the artificially dwarfed plants are imported in growing media. Between 5 and 10 companies import about 20,000 bare-rooted artificially dwarfed plants (approximately 5,000 from China, 10,000 from Japan, and 5,000 from Korea) annually (Importation of Artificially Dwarfed Plants in Growing Media From the People's Republic of China, 65 Federal Register (FR) 56803–56806, September 20, 2000).

In August 1992, representatives of the NPPO of China requested that the United States allow the importation of penjing plants in APHIS-approved growing media because exportation of these plants under the current regulation (7 CFR § 319.37), which requires that they be bare-rooted, results in a high mortality rate of the plants during shipment and upon their arrival in the United States. In their initial request, the NPPO of China submitted a list of 112 plant species that they wanted to export to the United States. PPQ reviewed and categorized the list of plants. The plants were categorized by PPQ as “prohibited,” “post-entry

quarantine,” and “restricted.” In January 1994, the Chinese government was asked to select five species for pest risk analysis. Subsequently, a list of eight species and a list of pests or potential pests associated with these plants were provided to PPQ. In April 1994, PPQ staff identified five penjing species as candidates for analysis: *Buxus sinica* (Buxaceae), *Ehretia (Carmona) microphylla* (Boraginaceae), *Podocarpus macrophyllus* (Podocarpaceae), *Sageretia thea (theazans)* (Rhamnaceae), and *Serissa foetida* (Rubiaceae).

PPQ evaluated the potential risk of importing plant pests of the five species of penjing plants using a systems approach. The systems approach applies a combination of safeguards and phytosanitary measures that reduces the pest risk to a level that is equal to or less than the importation of the bare-rooted plants currently allowed importation into the United States. In 1996 PPQ prepared pest risk assessments for *Buxus sinica*, *Ehretia microphylla*, *Podocarpus macrophyllus*, *Sageretia thea*, and *Serissa foetida* (Cave and Redlin, 1996). A pest risk management evaluation of the systems approach used for plants in growing media was prepared in 2002 (USDA, APHIS, 2002) to help in determining the feasibility of allowing importation of penjing plants from China into the United States. A supplemental risk assessment was prepared in 2003 for each of the five species proposed for importation (USDA, APHIS, 2003a,b,c,d,e). In addition, a pest risk management document (USDA, APHIS, PPQ, 2003) was prepared in 2003 to evaluate the mitigations that will be required for importing the five species of penjing. Following a request from China to allow rooting outside the greenhouse, additional mitigation measures were incorporated into the systems approach. Based on the risk assessments, the evaluation of the systems approach, and the pest risk management document, PPQ is proposing to change the current regulations by including specific restrictions designed to establish and maintain a pest-free production environment and ensure the use of pest-free seeds or parent plants, thus adequately safeguarding U.S. natural resources from risks that might otherwise be associated with penjing importation. This proposed regulation would allow *Buxus sinica*, *Ehretia microphylla*, *Podocarpus macrophyllus*, *Sageretia thea*, and *Serissa foetida* to be imported in approved growing media into the United States from China if specified conditions are met, thus meeting the Chinese NPPO request.

B. Purpose and Need

USDA carefully assesses all requests to change its regulations governing the importation of propagative plants because of concern for pests.

Some of the potential problems associated with propagative plants in growing media may include the following: (1) efficacy of treatment(s) of the growing media, (2) the possibility of pest infestation or reinfestation of “clean” plants, (3) the presence of biological contaminants that may not be discernible by visual inspections, and (4) the inability to visually inspect 100 percent of the plants, thus increasing the potential for introduction of plant pests. A systems approach that reduces the potential risk associated with these problems is proposed for importation of penjing plants in approved growing media.

The purpose of the proposed rule change is to (1) remove restrictions that prohibit importation of penjing plants in approved growing media, (2) improve safeguards that would reduce the risk of plant pests and diseases prior to and during shipping, (3) establish and implement a system for pest risk mitigation that provides additional safeguards to the current system for imported plant species, and (4) allow one species from each of the five genera of penjing plants in approved growing media from China to be imported into the United States according to the new systems approach.

Consideration of the proposed action is consistent with international trade agreements for facilitating trade. The Council on Environmental Quality (CEQ) implementing regulations for the National Environmental Policy Act of 1969 (NEPA) (42 United States Code (U.S.C.) 4321 *et seq.*) requires Federal agencies to “[b]riefly provide sufficient evidence and analysis for determining whether to prepare an environmental impact statement or a finding of no significant impact” (40 CFR 1508.9 (a) (1)). Thus, this environmental assessment (EA) has been prepared, according to CEQ regulations under NEPA, to consider the potential for environmental impacts from the proposed rule change to allow importation, from China into the United States, of five species of penjing plants in approved growing media, subject to specified certification, inspection, and growing requirements. This EA also has been prepared according to USDA regulations implementing NEPA (7 CFR Part 1b) and APHIS’ NEPA Implementing Procedures (7 CFR Part 372), and to satisfy Executive Order 12114, “Environmental Effects Abroad of Major Federal Actions.”

C. Regulatory Authority to Consider the Rule Change

The Plant Protection Act of 2000 (PPA), Title IV of Public Law 106–224 (7 USC §§ 7701 *et seq.*), as delegated by the Secretary of

Agriculture, and the 7 CFR Part 319, Subpart 37 (7 CFR § 319.37– Nursery Stock, Plants, Roots, Bulbs, Seeds, and Other Plant Products), authorizes APHIS to take actions to prevent the entry and establishment of harmful plant pest species, provide for the control, and minimize the economic, ecological, and human health impacts that harmful pests can cause. APHIS promulgates regulations under 7 CFR Parts 300–399 to carry out its safeguarding mandates under the PPA. To enforce these regulations, APHIS provides notices of quarantines on agricultural commodities; requires permits for importation of agricultural commodities; inspects cargo and passengers; can refuse entry of commodities found to be infested with certain pests; can require treatment of commodities with chemical or nonchemical methods, or with a combination of these methods; monitors for pests; provides preclearance inspection programs of certain agricultural commodities in some countries; participates in cooperative efforts at the international, Federal, State, and local levels to help protect against the introduction and spread of harmful pests; and conducts control or eradication programs.

Title 7 CFR Part 319, subpart 37, pertains to foreign quarantine notices for nursery stock, plants, roots, bulbs, seeds, and other plant products. The proposed changes for allowing penjing plants from China in growing media affect 7 CFR 319.37. The regulations under 7 CFR 319.37–8 currently allow the importation of penjing plants from China to the United States as bare-rooted plants provided that specific restrictions are followed. Section 319.37–8(g) provides that APHIS will evaluate requests from countries, such as China, to allow importation of additional taxa of plants established in growing media using specific pest risk evaluation standards.

II. Alternatives

A. No Action (No Change to the Current Regulations)

The no action alternative would involve no change to the current regulations. APHIS would continue to allow the importation of bare-rooted penjing plants from China, according to the current regulation under 7 CFR § 319.37, and would not allow penjing plants in approved growing media. However, APHIS would not be responding to China’s request.

B. Proposed Rule to Allow Importation of Certain Penjing Plants in Approved Growing Media Without Penjing-Specific Restrictions

This alternative would allow importation of *B. sinica*, *E. microphylla*, *P. macrophyllus*, *S. thea*, and *S. foetida* in approved growing media from the People's Republic of China subject only to the regulations governing certain plants in approved growing media and the regulations to protect against Cerambycidae in artificially dwarfed plants. These regulations are found in 7 CFR § 319.37–8(e) and 7 CFR § 319.37–5(q). There would be no penjing-specific restrictions. The current ability to import bare-rooted plants would not change under this alternative.

The following requirements would apply under Alternative B:

- (1) Plants must be established in unused approved growing media.
- (2) Articles must be grown in compliance with a written agreement for enforcement of this section signed by the plant protection service of the country of origin and Plant Protection and Quarantine APHIS. The plants must be developed from mother stock which has been inspected no more than 60 days before establishment of the plants. The inspection will be performed by an APHIS inspector or an inspector of the plant protection service of the country of origin.
- (3) The plants must be grown in compliance with a written agreement between the grower and the plant protection service of the country of origin. The grower must allow access to his facility to make sure it complies with the regulations.
- (4) Plants must be grown solely in a greenhouse in which sanitary procedures are employed to exclude plant pests and diseases. This includes cleaning and disinfection of tools and facilities and adequate measures to protect against plant pests and disease. The greenhouse must be free of soil and sand. The greenhouse must have screens on all vents and openings of not more than 0.6 millimeter (mm). All entryways must be equipped with automatically closing doors.
- (5) Plants must be rooted and grown in an active foliar state for at least 4 consecutive months before export. The greenhouse must be used solely for exports to the United States.

(6) Plants grown from seeds germinated in a greenhouse unit or descended from a mother plant that was grown for at least 9 months in the exporting country prior to importation of the descendant plants, provided that the mother plant was imported into the exporting country from another country, must be (1) grown for at least 12 months in the exporting country prior to importation of the descendant plants into the United States or (2) treated at the time of importation into the exporting country with a treatment prescribed for pests of that plant by the plant protection service of the exporting country and, following treatment, the plant should then be grown for at least 9 months in the exporting country prior to importation of the descendant plants.

(7) Plants must be watered only with rainwater that has been boiled or pasteurized, with clean well water, or with potable water.

(8) Plants must be rooted and grown in approved growing media on raised benches supported by legs and raised at least 46 centimeters (cm) (18 inches) off the floor.

(9) Plants must be stored and packaged only in areas free of soil, earth, and plant pests.

(10) Plants must be inspected in the greenhouse and found free of evidence of plant pests and diseases by an APHIS inspector or an inspector of the plant protection service of the country of origin.

(11) Plants over 2 years in age must spend at least 2 years in the greenhouse to mitigate against any infestation with longhorned beetles (Cerambycidae).

If plants are over 2 years old they would enter under conditions specified in 7 CFR § 319.37–5(q). This regulation was promulgated in September 2002 to protect against the introduction of longhorned beetles (Cerambycidae) into the United States in artificially dwarfed plants. Under the conditions specified in 7 CFR § 319.37–5(q), plants over 2 years old must spend at least 2 years in the greenhouse to mitigate against any infestation with longhorned beetles. The other conditions of 7 CFR § 319.37–5(q) are equivalent to provisions with 319.37–8. Plants older than 2 years must be artificially dwarfed to enter; all other plants are subject to the size/age restrictions outlined in 7 CFR § 319.37–2(b).

C. Proposed Rule to Allow Importation of Certain Penjing Plants in Approved Growing Media With Penjing-specific Restrictions

This alternative is identical to Alternative B except that importations are also subject to penjing-specific restrictions.

The additional penjing-specific regulations that are applicable under this alternative are listed below:

(12) Cuttings can be rooted in approved media or on raised benches (46cm in height) outside in pots containing APHIS approved media. When plants are moved into the greenhouse, they would have to be washed free of planting media and debris, dipped in a pesticide dip that would control all mites, insects, mollusks, nematodes, and fungi, and repotted in APHIS-approved media. If plants are established directly in the greenhouse from mother plants outside of the pest exclusionary greenhouse the cuttings must also first be dipped in a pesticide dip as described above.

(13) Plants must be watered only with rainwater that has been boiled or pasteurized, with clean well water, or with potable water whether cuttings are established inside or outside a greenhouse.

(14) Plants would be required to grow for at least 6 months in the greenhouse (2 months in addition to the 4-month requirement under the growing media regulations (see number 3, of 7 CFR 319.37–8(e), in Alternative B, above), totaling at least 6 months growth). While in the greenhouse, the plants would have to be treated with broad spectrum pesticides (including a miticide, insecticide, fungicide, nematocide, and molluscicide) at least once every 10 days or as needed to maintain a pest-free condition for 3 months before shipping.

III. Potential Environmental Consequences of the Proposed Action and Alternatives

A. Environmental Consequences for Alternative A (No Action)

This section describes the environmental effects if the no action alternative is selected leaving 7 CFR § 319 unchanged. Currently, penjing and other artificially dwarfed plants are imported as bare-rooted plants. There is some indication that penjing imports have increased over time and may continue to do so (Importation of Artificially Dwarfed Plants, 66 FR 20208–20211, April 20, 2001).

Under current regulations, all plants are enterable subject to inspection at designated ports of entry, i.e., ports associated with facilities where propagative material can be examined (plant inspection stations). All artificially dwarfed plants must be accompanied by a USDA permit and a phytosanitary certificate issued by the NPPO of China. This document certifies that the artificially dwarfed plants have been inspected and found free of quarantine pests before shipment to the United States. Penjing plants imported bare rooted generally do not have buds or flowers and roots are not hidden from view within growing media; thus, it is relatively easy to find plant pests or evidence of plant pests (such as bore holes) that are visible to the unaided eye. Therefore, visual inspection of these plants at the port of entry is considered effective.

Inspections of bare rooted artificially dwarfed plants are conducted by PPQ at a plant inspection station at the first port of entry in the United States. These stations are staffed with PPQ pest identification specialists, as well as PPQ officers, who carefully examine artificially dwarfed plants. Inspection and examination may be limited to a verification of the contents and a review of the documentation or may consist of a standard inspection, including an inspection of up to 2 percent of the plants in the shipment (more than 98 percent of imported plants are not inspected). If evidence of quarantine pests are discovered on bare-rooted plants, appropriate phytosanitary measures are conducted (e.g., treatment, destruction, or return of plants to exporting country). However, problems with relying solely on visual inspection include (1) some pests can only be viewed microscopically and are easily overlooked and (2) some pests can escape detection, especially when all bare-rooted plants are not carefully visually inspected. The current

inspection strategies appear to be effective (USDA, APHIS, PPQ, 2003). Only one port of entry inspectional detection has been reported from program export plants. In 1990, a Lepidoptera larva was found in a single shipment. A very careful inspection of the originating greenhouse in the Netherlands failed to detect any pests and the interception was questioned (Miller, 2003). Pest interception data and the appropriate mitigation for each quarantine pest is detailed in the pest risk assessments (Cave and Redlin, 1996; USDA, APHIS, 2003a,b,c,d,e) and pest risk management document for the Chinese penjing imports (USDA, APHIS, PPQ, 2003), respectively.

There is no evidence that penjing plants have become invasive. Although not native to the United States, penjing plants are limited to indoor habitats throughout much of the country and are not regularly grown outdoors in unmanaged habitats because of their temperature and light requirements. Weediness evaluations conclude that there is not a significant weed potential for the penjing plants proposed for import under this proposed rule, *E. microphylla*, *S. foetida*, *S. thea*, *P. macrophyllus*, and *B. sinica* (Cave and Redlin, 1996; USDA, APHIS, 2003a,b,c,d,e; USDA, APHIS, PPQ, 2003).

The current regulations for importation of artificially dwarfed (bare-rooted) plants into the United States provide adequate protection of natural resources. However, as the number of imported plants increases, the chance of pests entering the country also increases, thereby increasing the possibility of a pest population becoming established. If introduction and establishment of pests associated with penjing plants occurs, coordinated eradication/control programs involving the use of pesticides and/or biocontrol agents may be initiated. Such programs have the potential to impact human health and the environment and, if sponsored by USDA, would be preceded by site-specific environmental analyses. USDA continues to improve mitigation strategies so as to minimize impacts on the environment and human health and to preserve natural ecosystems and biodiversity (Harman-Fetcho et al., 2003). Thus, it is highly likely that the potential impacts from the use of pesticides and/or biocontrol agents in coordinated eradication/control programs will be mitigated to the maximum extent possible. If populations of pests become established and no coordinated eradication/control programs are initiated, then control efforts will be left to individuals (e.g., farmers, homeowners, or commercial growers). The lack of a coordinated control or eradication effort would likely result in the use of greater volumes of pesticide than would a coordinated control program. If pest populations were to establish in natural areas, it is likely that no control efforts would be pursued. In that case, there would be a

permanent degradation of the natural environment due to the establishment of an invasive pest species.

The risk associated with Alternative A appears to rest primarily with the efficacy of inspection of the bare-rooted plants. At the present time, there is no indication that pests have entered the country on penjing and become established. However, as imports increase, there is a greater chance that pest species will enter the country and become established. The risk is higher for microscopic pests and pests that are difficult to detect visually.

B. Environmental Consequences for Alternative B (Importation of Certain Penjing Plants in Approved Growing Media Without Penjing- specific Restrictions)

This alternative includes all risk mitigation program requirements outlined in the APHIS regulations for certain plants in growing media (7 CFR § 319.37–8(e)) and for dwarf plants greater than 2 years old (7 CFR § 319.37–5(q)). This alternative does not include any additional penjing-specific mitigation measures. A listing of those quarantine pests associated with penjing plants proposed for importation into the United States from the People’s Republic of China can be found in the risk assessments (USDA, APHIS, 2003a,b,c,d,e) and the pest risk management document for Chinese penjing plants (USDA, APHIS, PPQ, 2003).

If this alternative were chosen, the risk of pests associated with plants in growing media entering the country and establishing populations is small because mitigation measures specific to those pests will be employed. However, there is risk of pests associated with penjing plants entering the country and establishing populations, thus, potentially negatively impacting natural resources of the United States. This may result in the planning and implementation of eradication programs, probably involving the use of pesticides and/or biocontrol agents. Should eradication efforts be unsuccessful, it likely would result in the permanent establishment of pests in the country. If an eradication/control program were required, additional environmental analysis would be performed on a site-specific/program-specific basis. APHIS regulations currently in 7 CFR § 319.37–8(e) and 7 CFR § 319.37–5(q) that will apply in this alternative and their efficacy for pest mitigation are as follow:

(1) Plants must be established in unused approved growing media.

Root disease assessment is more challenging than foliar disease assessment because the roots are “hidden” in the growing media, making them difficult to inspect. Therefore, root pest prevention is essential for excluding this type of quarantine pests. An important component of a systems approach to preventing such infection is to prevent pathogens from being introduced with the growing media. Fungal pathogens are often introduced into the greenhouse via soil particles, so the use of sterilized or pasteurized growing media is commonly recommended to prevent the introduction and/or spread of both of many fungal pathogens. Studies on APHIS-approved growing media found that pathogens are not present (USDA, APHIS, PPQ, 2003).

(2) Articles must be grown in compliance with a written agreement for enforcement of this section signed by the plant protection service of the country of origin and Plant Protection and Quarantine APHIS. The plants must be developed from mother stock which has been inspected no more than 60 days before establishment of the plants. The inspection will be performed by an APHIS inspector or an inspector of the plant protection service of the country of origin.

Written agreements between the exporting country and APHIS are effective tools for communicating and enforcing the phytosanitary measures necessary for ensuring a pest-free commodity. Enforcement is carried out primarily through inspections.

The use of clean mother stock is an essential component of ornamental plant production. This requirement initially excludes pests from the plant production environment. Fungal pathogens introduced into the greenhouse via infested plant material can also be reduced or eliminated by clean mother stock (USDA, APHIS, PPQ, 2003).

(3) The plants must be grown in compliance with a written agreement between the grower and the plant protection service of the country of origin. The grower must allow access to his facility to make sure it complies with the regulations.

Access helps to ensure compliance with APHIS requirements by providing a mechanism for removal from the program if pests are found (USDA, APHIS, PPQ, 2003).

(4) Plants must be grown solely in a greenhouse in which sanitary procedures are employed to exclude plant pests and diseases. This

includes cleaning and disinfection of tools and facilities and adequate measures to protect against plant pests and disease. The greenhouse must be free of soil and sand. The greenhouse must have screens on all vents and openings of not more than 0.6 mm. All entryways must be equipped with automatically closing doors.

Sanitation effectively controls or eliminates all types of pests by reducing refugia, food sources, and inoculum levels in addition to the pests themselves. The United States import restrictions barring soil carried with propagative horticultural plants effectively prevent the introduction of many mollusks. To exclude plant pests from a greenhouse, the mesh size of the screen is critical. A screen size of 0.6 mm, as required, will be effective in excluding most adults and larger immature mollusks and insect pests because they are physically too large to get through the mesh (USDA, APHIS, PPQ, 2003). Screens and doors exclude the entry of flying or crawling pests that cannot fit through screens. Although 0.6 mm mesh screening will not completely exclude whiteflies, aphids, and thrips, research (Bethke, et al., 1994) indicates significant reductions in insects passing through similarly sized screens. The greenhouse enclosure provides a physical barrier to plants' exposure to fungal spores that are rain splashed (such as *Guignardia miribelli*, *Macrophoma ehretia*, and *Meliola buxicola*) or windborne (such as *Guignardia miribelli*, *Meliola buxicola*, or *Puccinia buxi*). Standard greenhouse sanitation includes removal of plant debris and cleaning and disinfection of tools and facilities. These essential practices are commonly recommended to prevent fungal infections (USDA, APHIS, PPQ, 2003).

(5) Plants must be rooted and grown in an active foliar state for at least 4 consecutive months before export. The greenhouse must be used solely for exports to the United States.

This period of exclusion serves as a preshipment quarantine by allowing materials destined for the United States to be segregated from other plants. Inspections during this interval allow detection, identification, and elimination of all types of pests including fungal diseases that require time to develop symptoms (USDA, APHIS, PPQ, 2003).

(6) Plants grown from seeds germinated in a greenhouse unit or descended from a mother plant that was grown for at least 9 months in the exporting country prior to importation of the descendant plants, provided that the mother plant was imported into the exporting country from another country, must be (1) grown for at least 12 months in the exporting country prior to importation of the descendant plants into the

United States or (2) treated at the time of importation into the exporting country with a treatment prescribed for pests of that plant by the plant protection service of the exporting country and, following treatment, the plant should then be grown for at least 9 months in the exporting country prior to importation of the descendant plants.

This measure prevents disease and pest transmission from mother plants to asexually produced progeny. It specifically addresses the potential pest transmission from recently imported mother stock. Thus, it mitigates against pests non-native to the exporting country, and thus not identified in the pest risk assessment (USDA, APHIS, PPQ, 2003).

(7) Plants must be watered only with rainwater that has been boiled or pasteurized, with clean well water, or with potable water.

Well-water is the preferred source for irrigation because it is generally pathogen-free, while untreated pond or river water may carry disease organisms or pesticides. Other sources, such as potable municipal water or boiled water, are also expected to be pathogen-free, although they may be more costly for the producer. Good water quality is important for plant growth, and the ability of some fungi, nematodes, and soil-borne vectors of viruses to be transported in water is reduced or eliminated by the use of clean water sources (USDA, APHIS, PPQ, 2003).

This mitigation measure is particularly effective against quarantine pests classified as fungi, e.g., cankers, sooty mold, and leafspots (*Guignardia miribelii*, *Sphaerella podocarpi*, *Meliola buxicola*, *Phellinus noxius*, *Macrophoma ehretiae*, *Pestalospaeria jinggangensis*, *Pestalotia diospyri*, *Phomopsis* sp., *Pseudocercospora ehretia*, and *Pseudocercospora ehretia-thyrsiflora*); fungi, e.g., mildew and rusts (*Uncinula ehretiae*, *Melampsora serisscola*, *Phakospora ehretiae*, *Puccinia buxi*, *Uredo ehretiae*, and *Uredo garanbiensis*); mollusks (*Bradybaena ravida*, *Incilaria* sp., *Succinea horticola*, and *Sarasinula plebia*); and nematodes (*Tylenchorhynchus crassicaudatus*, *Tylenchorhynchus leviterminalis*, and *Xiphinema brasiliense*) (USDA, APHIS, PPQ, 2003).

(8) Plants must be rooted and grown in approved growing media on raised benches supported by legs and raised at least 46 cm (18 inches) off the floor.

The use of approved growing media will serve to mitigate pest risks. Under this alternative, the plants would be required to be rooted and

grown in approved growing media. Approved growing media is defined as packaged media that has never been used before and is known to be free of soil and pests of quarantine significance. Plants must be imported in approved growing media or a combination of any of the approved growing media, as identified in 7 CFR § 319.37–8(e)(1) (USDA, APHIS, PPQ, 2003).

This requirement controls or eliminates soil-inhabiting stages of soil-borne arthropods (*Anomala cupripes*, *Sympeizomias velatus*, and *Tridactylus japonicus*); large foliage feeding arthropods (*Ascotis selenaria*); scales and mealybugs (*Rhizoecus hibisci*); mollusks (*Bradybaena ravida*, *Incilaria* sp., *Succinea horticola*, and *Sarasinula plebeia*); fungi, e.g., cankers, sooty mold, and leafspots (*Guignardia miribelii*, *Sphaerella podocarpi*, *Meliola buxicola*, *Phellinus noxius*, *Macrophoma ehretiae*, *Pestalospaeria jinggangensis*, *Pestalotia diospyri*, *Phomopsis* sp., *Pseudocercospora ehretia*, and *Pseudocercospora ehretia-thyrsiflora*); fungi, e.g., mildew and rusts (*Uncinula ehretiae*, *Melampsora serissicola*, *Phakospora ehretiae*, *Puccinia buxi*, *Uredo ehretiae*, and *Uredo garanbiensis*); and nematodes (*Tylenchorhynchus crassicaudatus*, *Tylenchorhynchus leviterminalis*, and *Xiphinema brasiliense*) (USDA, APHIS, PPQ, 2003).

A height of 46 cm is the minimum height needed to prevent spread of plant-parasitic nematodes, particularly, *Meloidogyne incognita*, from plant to plant via irrigation or rain-water splash. Bench heights greater than 46 cm make inspections easier to perform and reduce the likelihood of splash dispersal (USDA, APHIS, PPQ, 2003).

(9) Plants must be stored and packaged only in areas free of soil, earth, and plant pests.

These requirements ensure that soil-borne pests, such as Coleoptera, Orthoptera, and Mollusca cannot easily access plants prior to shipment (USDA, APHIS, PPQ, 2003).

(10) Plants must be inspected in the greenhouse and found free of evidence of plant pests and diseases by an APHIS inspector or an inspector of the plant protection service of the country of origin.

Inspections during this interval allow detection, identification and elimination of all types of pests. Whereas the larger organisms, such as Homoptera and Lepidoptera, may be seen directly, even very small pests, such as Thysanoptera and fungal pathogens, eventually show visible damage (USDA, APHIS, PPQ, 2003). Since plants are required to

remain in the greenhouse for a number of months, any pest problems are likely to manifest themselves and be discovered through the inspection process.

(11) Plants over 2 years in age must spend at least 2 years in the greenhouse to mitigate against any infestation with longhorned beetles (Cerambycidae).

In China, the Asian longhorned beetle (*Anoplophora glabripennis*) requires 1 to 2 years to develop from egg to adult. Other Cerambycidae have life cycles similar in length. Females oviposit in branches and trunks greater than 3 cm in diameter. Plants less than 2 years of age are unlikely to have sufficient girth for oviposition. Requiring plants more than 2 years old to have been grown for the previous 2 years in the greenhouse provides sufficient time for the emergence and detection of beetles from plants infested prior to entering the greenhouse. Furthermore, the greenhouse structure prevents exposure of uninfested plants to potential ovipositing adults outside (USDA, APHIS, PPQ, 2003).

Mitigations under Alternative B provide protection from the introduction and establishment of most pests. However, the mitigations under this alternative fail to provide sufficient protection against the introduction and establishment of some quarantine pests, such as Homoptera, Lepidoptera, and pathogens, associated with penjing plants. However, only one port of entry inspectional detection has been reported from program export plants. In 1990, a Lepidoptera larva was found in a single shipment. A very careful inspection of the originating greenhouse in the Netherlands failed to detect any pests and the interception was questioned (Miller, 2003). In contrast, there have been numerous interceptions during port of entry inspections of bare-rooted plants that are not required to enter under the regulations for plants in growing media (PIN 309, 2003).

The optimal growing conditions for penjing plants would be growth outside for a portion of their life (to strengthen the root systems of the plants) and then continuing growth in the greenhouse prior to export to the United States. However, the optimal outdoor growing environment is not allowed under this alternative, which eliminates the potential risk of pests that may infest the penjing plants during outdoor growth. It is possible that any of the listed interceptions in the pest risk assessment documents (Cave and Redlin, 1996; USDA, APHIS, 2003a,b,c,d,e) for Chinese penjing may be detected at ports of entry. The regulations under this alternative are not likely to adequately protect plants from soil-borne

pests on the potentially infected plants. If a penjing plant infected with soil-borne pests is planted in native soils, the surrounding soils are likely to be infected. It is not likely that this alternative will protect against whiteflies and thrips. Normally several repetitions of chemical applications are necessary over a 2 to 3 week period to kill adults that emerge from nymphs and pupae (NEGFG, 2003) and this alternative does not require pesticide applications.

Under this alternative, penjing plants identified in the pest risk assessments (Cave and Redlin, 1996; USDA, APHIS, 2003a,b,c,d,e), have the potential to be introduced and become established in the United States. If introduction of pests associated with penjing plants occurs, it may initiate official eradication/control programs with use of pesticides and/or biocontrol agents. The eradication or control programs are likely to be designed in such a way that they will have minimal impact to human health and the environment. They will be subject to site-specific environmental analysis. If populations of pests become established and no eradication/control programs are initiated, then control efforts will be left to individuals (e.g., farmers, homeowners, or commercial growers). The lack of a coordinated control or eradication effort would likely result in the use of greater volumes of pesticide than would an official control program. If the populations were to establish in natural areas, it is likely that no control efforts would be pursued. In that case, there would be a permanent degradation of the natural environment due to the establishment of an invasive pest species.

C. Environmental Consequences for Alternative C (Amend the Regulation to Allow Importation of Certain Penjing Plants With Penjing-Specific Restrictions and in Approved Growing Media)

Amending 7 CFR § 319 according to the proposed rule would allow importation of penjing plants from the People's Republic of China rooted in approved growing media, provided the plants are produced, handled, and imported in accordance with the requirements of 7 CFR § 319.37–8(e) and 319.37–5(q) (as required under Alternative B), as well as three penjing-specific requirements. In addition, the penjing plants must be accompanied at the time of importation by a phytosanitary certificate issued by the NPPO of China declaring that all requirements have been met.

Additional penjing-specific regulations that are applicable under this alternative and their efficacy for pest mitigation are as follows:

(12) Cuttings can be established in a greenhouse in approved media or on raised benches outside in pots containing approved media. When plants are moved into the greenhouse they would have to be washed free of planting media and debris, dipped in a pesticide dip that would control all mites, insects, mollusks, nematodes, thrips, and fungi, and repotted in APHIS-approved media.

Fungal pathogens are generally introduced into the greenhouse via infested plant material or soil particles. The use of sterilized or pasteurized growing media will prevent the introduction and/or spread of many fungal pathogens and is required. Requiring the use of APHIS-approved media also helps ensure that soil-borne pests, such as *Anomala cupripes* (Coleoptera: Scarabaeidae), *Sympeizomias velatus* (Coleoptera: Curculionidae) and *Tridactylus japonicus* (Orthoptera: Tridactylidae) cannot easily access plants (USDA, APHIS, PPQ, 2003). Washing roots prior to transferring plants from the outdoors to the greenhouse further reduces the chance of infestation by soil-borne stages. The pesticide dip will control any pests that were able to survive the mitigation measures required in 7 CFR § 319.37–5(q) and 319.37–8(e).

(13) Plants must be watered only with rainwater that has been boiled or pasteurized, with clean well water, or with potable water whether cuttings are established inside or outside a greenhouse.

Well water is the preferred source of irrigation since it is generally pathogen-free, while untreated pond or river water may carry disease organisms or pesticides. Other sources, such as potable municipal water or boiled water are also expected to be pathogen free, although they may be more costly for the producer. Good water quality is important for plant growth, and the ability of some fungi, nematodes, and soil-borne vectors of viruses to be transported in water is reduced or eliminated by the use of clean water sources (USDA, APHIS, PPQ, 2003).

(14) Plants would be required to be grown for at least 6 months in the greenhouse (2 months in addition to the 4 month requirement under the growing media regulations). While in the greenhouse, the plants would have to be treated with broad spectrum pesticides (including a miticide, insecticide, fungicide, nematocide, and molluscicide) at least once every 10 days or as needed to maintain a pest-free condition for 3 months before shipping.

Inspections during this extended growth interval allows for detection, identification, and elimination of all types of pests. This is particularly

effective against such pests as Homoptera and Lepidoptera whose later life stages are larger and more readily detected, as well as those that require time to develop symptoms. The specific pesticides utilized to meet importation requirements under this proposed alternative will be identified in the written operating agreement. Treating with broad spectrum pesticides at least every 10 days ensures that any pests that survived the mitigations required by 7 CFR § 319.37–5(q) and 319.37–8(e) or that were able to infiltrate the phytosanitary greenhouse will not be able to survive to the shipping date. Chemical controls are especially effective against thrips, aphids, and whiteflies, which may hide in leaves or in flowers. Application of insecticides before peak thrips activity (every 2 to 3 weeks) will ensure control of adults before they start to lay eggs.

The additional mitigation requirements of this alternative, when superimposed upon the requirements of 7 CFR § 319.37–(5q) and 319.37–8(e), result in a lower risk of plant pests entering and establishing themselves in the country than either of the other alternatives. The three additional penjing-specific requirements reduce the risk of soil-borne pests having access to plants, require pesticide dipping and spraying to eliminate pests such as thrips, whiteflies and aphids, and increase growing requirements and inspections, thus making it more likely that pests, if present, will manifest themselves and be discovered prior to importation. It is likely that, once imported, penjing plants will not be restricted to growing in APHIS-approved growing media; however, due to the phytosanitary requirements and mitigations applicable under this rule prior to importation, this is not likely to result in the introduction of pests. The pesticide dippings and sprays are conducted prior to importation and, thus, will not result in impacts to human health or the environment when penjing plants are imported. The interval between applications may be as short as 3 to 7 days depending on temperature, relative pest numbers, and stage of the crop, and will not be longer than 10 days.

Similar to the other alternatives proposed in this document, if introduction of pests associated with penjing plants occurs, it may initiate official eradication/control programs with use of pesticides and/or biocontrol agents. These programs will result in site-specific environmental analyses. Adequate mitigation strategies would be implemented for the use of pesticides and/or biocontrol agents in these eradication/control programs to reduce the impact to human health, natural and physical environments, nontarget species, and threatened and endangered species. If populations of pests become established and no eradication/control programs are initiated, then control efforts will

be left to individuals (e.g., farmers, homeowners, or commercial growers). The lack of a coordinated control or eradication effort would likely result in the use of greater volumes of pesticide than would an official control program. If the populations were to establish in natural areas, it is likely that no control efforts would be pursued. In that case, there would be a permanent degradation of the natural environment due to the establishment of an invasive pest species.

The pest risk management strategies associated with this alternative have been specifically selected to reduce the risk of importing pests of concern to a negligible level (USDA, APHIS, PPQ, 2003). The mitigations under this proposed alternative are expected to result in effective removal of pests of concern based on the risk assessments for the importation of Chinese penjing into the United States (Cave and Redlin, 1996; USDA, APHIS, 2003a,b,c,d,e) and the pest risk management document for Chinese penjing plants (USDA, APHIS, PPQ, 2003). Based on the scientific findings and mitigations discussed within these documents, environmental impacts are not likely to be significant.

IV. Special Considerations

A. Environmental Justice

Consistent with Executive Order (EO) 12898, “Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations” (59 *Federal Register* (FR) 7629–7633), and the Departmental Regulation 5600–2, Environmental Justice, dated December 15, 1997, the proposed rule change for the importation of penjing plants in growing media from the People’s Republic of China will not have adverse human health or environmental effects on minority and low-income populations.

B. Protection of Children’s Health

EO 13045, Protection of Children From Environmental Health Risks and Safety Risks (62 FR 19885–19888), and APHIS’ corresponding Directive 5600.3 (USDA, APHIS, 1999) do not apply to this proposed action. The proposed action presents no risks to the health or safety of children.

C. Endangered and Threatened Species

The Endangered Species Act (ESA) requires Federal agencies to ensure that they do not jeopardize the continued existence of endangered or threatened species or result in the destruction or adverse modification of critical habitat. To fulfill this requirement relative to the proposal to allow import of penjing in approved media, APHIS prepared and submitted biological evaluations (BE) for the five penjing plants proposed for importation under this rule (USDA, APHIS, 2002a,b,c,d,e) to the U.S. Fish and Wildlife Service (FWS), Arlington, VA, in compliance with Section 7 of the ESA. Based on the information provided in the BE, an interagency meeting held on April 2 and 3, 2003, and additional clarifying and supporting information provided subsequent to the meeting, FWS concurred with the APHIS determination that the importation of artificially dwarfed (penjing) plants in growing media from China will not adversely affect federally listed or proposed endangered or threatened species or their habitats.

V. Conclusions

This EA analyzes the alternatives of (1) no action (no change to the current regulations), (2) approval of a rule to allow importation of certain penjing plants in approved growing media, without penjing-specific restrictions, and (3) approval of the proposed rule to allow importation of certain penjing plants in approved growing media with penjing-specific restrictions. Each of these alternatives was considered to have potential environmental consequences. Approval of the recommended proposed rule allowing the importation of certain penjing plants with penjing-specific restrictions and in approved growing media is not expected to result in a significant impact on the environment. APHIS has determined that by using a systems approach including the additional proposed measures, that quarantine pests are effectively removed from the pathway and precluded from establishment in the United States. The importation of penjing plants in growing media from the People's Republic of China under the conditions required by 7 CFR § 319.37–8(e) and the proposed additional mitigations pose no greater pest risks than the risks presented by other plant material currently allowed entry as bare-rooted plants. The application of additional safeguards will reduce the risk posed by the importation of certain penjing plants to the same level or below that posed by currently permitted bare-rooted importations (USDA, APHIS, PPQ, 2003).

If quarantine pests accompanying penjing plant shipments were to become established in the United States, official eradication/control programs, that may include the use of pesticides and/or biocontrol agents, could be initiated. Any official eradication/control programs that may be initiated are likely to be designed in such a way that they will have minimal impact to human health and the environment and they will be subject to site-specific environmental analysis. If populations of pests become established and no official eradication/control programs are initiated, then control efforts will be left to individuals (e.g., farmers, homeowners, or commercial growers) and no formal site-specific environmental analysis is likely to be prepared.

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VII. Consultation and Review

Individuals within APHIS staffs were contacted for information or to review documents during the preparation of this environmental assessment. The staff addresses follow.

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Finding of No Significant Impact
Final Rule for the Importation of Artificially Dwarfed Plants in Growing Media
from the People's Republic of China
Environmental Assessment
December 2003

The U.S. Department of Agriculture (USDA), Animal and Plant Health Inspection Service (APHIS), Environmental Services (ES), at the request of Plant Protection and Quarantine (PPQ), has prepared an environmental assessment (EA) entitled *Final Rule for the Importation of Artificially Dwarfed Plants in Growing Media from the People's Republic of China*. This EA was prepared in accordance with APHIS' procedures for implementing the National Environmental Policy Act.

This EA, incorporated by reference in this document, is available through the internet at <http://www.aphis.usda.gov/ppd/es/ppqdocs.html> and from the following office:

USDA, APHIS, PPQ
4700 River Road, Unit 140
Riverdale, MD 20737-1236

The EA analyzed three alternatives: (A) no action (no change to the current regulations), (B) importation of certain penjing plants without penjing-specific restrictions in approved growing media, and (C) importation of certain penjing plants with penjing-specific restrictions in approved growing media (the preferred alternative). Based on the information presented in the EA, I have selected Alternative C as the preferred alternative. This alternative will amend the regulations for importation of plants and plant products to allow the importation from China into the United States of certain penjing plants with penjing-specific restrictions in approved growing media.

The pest risk management strategies required under Alternative C have been specifically selected to result in effective removal of pests of concern, and to reduce, to a negligible level, the risk of importing these pests. In addition, the plants proposed for import have been determined to be non-invasive. Thus, this alternative will not result in significant environmental impacts. The U.S. Fish and Wildlife Service has concurred with the APHIS determination that the importation of artificially dwarfed (penjing) plants in approved growing media from China will not adversely affect federally listed or proposed endangered or threatened species or their habitats.

The EA is consistent with Executive Orders No. 19898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations" and No. 13045, "Protection of Children From Environmental Health Risks and Safety Risks." The importation of artificially dwarfed plants (penjing) of the species *Buxus sinica*, *Ehretia microphylla*, *Podocarpus macrophyllus*, *Sageretia thea*, and *Serissa foetida* in approved growing media from the People's Republic of China will not result in disproportionately high and adverse human health or environmental effects on any minority population, low-income population, or children.

Therefore, I have determined that implementation of Alternative C will not have a significant impact on human health or the environment. I further find that it is not necessary to prepare an environmental impact statement.

/S/

Richard Dunkle
Deputy Administrator
Plant Protection and Quarantine
Animal and Plant Health Inspection Service

January 12, 2004

Date